

High speed spindles with air bearings HFS 80 / HFS 100 and automatic tool changer



High demands

Automatic tool changers for spinning high speed spindles with air bearings have to meet two decisive demands:

- There must be no unbalance at all in the clamping system. With the high speeds in operation, already very small eccentric masses lead to vibrations which can cause blocking of the spindle.
- In order not to destroy the effect of contactless air bearings, the operating elements for the clamping system must not be in contact with the rotating parts of the spindle during running.

The new tool changer by Lehmann Präzision GmbH meets these demands and thus offers completely new possibilities of using high speed spindles with air bearings.

Structure of the system

The whole system consists of four components:

1. Tool holder with hollow taper shank DIN 69893 HSK-E 25
The HSK proved of value as interface between machine and tool. It features high rigidity and bending strength, high reproducibility of the tool change and excellent concentricity properties.
2. HSK clamping system
3. Locking unit
The self-locking locking mechanism permanently and securely clamps the HSK clamping system in the spindle without spring force. The clamped position is securely held even under vibration loads.
4. Clamping and releasing unit
Clamping and releasing are effected by means of a pneumatically driven operating rod in the centre of the spindle. The rod is in contact with the locking unit only during clamping and releasing operations. While the spindle is rotating, it is not in contact with the rotating parts.

The whole mechanism is rotationally symmetric and thus does not produce any unbalance.

Considerable advantages for the user

The advantages of the system are obvious:

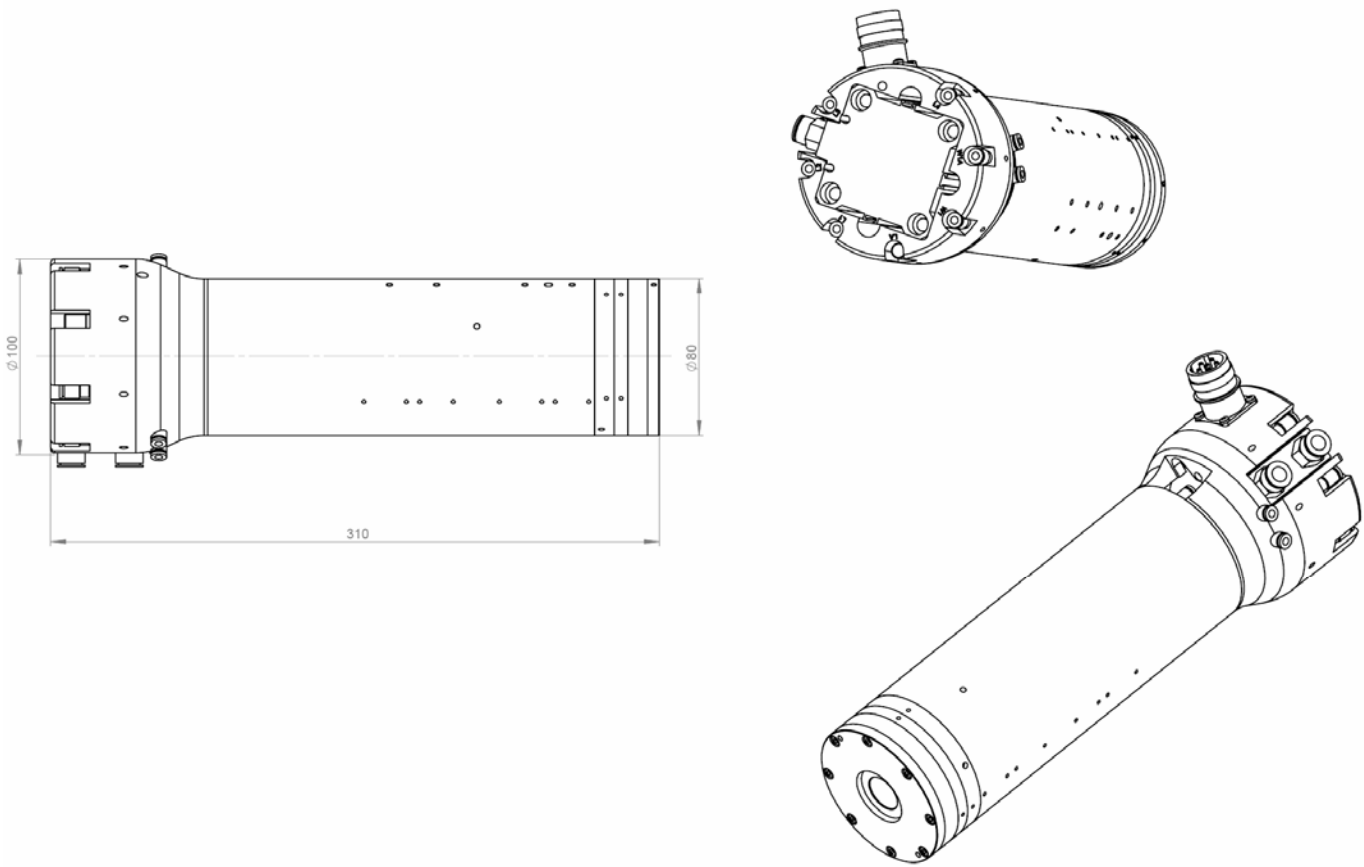
- Quick tool change
- Tools can be preset outside the machine
- Clamping system with high static and dynamic rigidity thanks to short flow of power without the elasticity of a spring assembly
- Secure clamping, even in case of large HSK tolerances.

Technical Data

Possible application:	In HFS 80 and HFS 100
Tool holder:	HSK-E 25
Working pressure:	6 bar
Coolant supply through the tool:	not possible

Dimension illustrations

HFS 80



HFS 100

In preparation

Subject to technical modifications.

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